

Remarks

A. Status of the Claims

Upon entry of this Amendment, claims 1-17 are pending. Claims 18-20 have been previously cancelled, claims 1 and 2 have been amended, and no new claims have been added. Claims 1-15 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Falster et al. (WO 98/38675) or Huber et al. (U.S. Patent No. 4,851,358), both in view of Aswad (WO 99/03138). Claims 16 and 17 have also been rejected under 35 U.S.C. §103(a) as being unpatentable over Falster et al. or Huber et al., both in view of Aswad.

B. Amendments to the Claims

Claim 1 is amended to clarify the relationship among some components of an apparatus in which the method of claim 1 is performed and to emphasize that the steps of the method are performed in the same chamber within the apparatus. Support for amended claim 1 can be found, for example, at page 12, lines 10-12, at page 17, lines 16-24, and at page 18, lines 28-29 of the Specification. Claim 2 is amended to emphasize that an epitaxial deposition step and a heating step are performed without an intervening cooling step. Support for amended claim 2 can be found, for example, at page 14, lines 15-16 and at page 18, line 30 through page 19, line 8 of the Specification. No new matter is being added by the amendments to the claims.

C. Amendments to the Specification

The Specification is amended at pages 17 and 18 for clarity to identify a thermocouple with a unique reference number, 111. Prior to this amendment, the thermocouple was mistakenly identified by reference number 112, which also identified an opening in a floor. As supported by Figure 5, 112 is the correct reference number for the opening in the floor. This paragraph is also amended to correct a misspelling of "susceptor." No new matter is being added by the amendments to the Specification.

D. Amendments to the Drawings

In accordance with the proposed revisions to 37 CFR 1.121, replacement
* Figures 1, 2, 4, and 5 without markings are enclosed herewith.

Figures 1 and 2 have been amended to change reference number 2 for the wafer surfaces at the left-most portions of the respective figures to reference number 6. Figures 1 and 2 have also been amended to change reference number 2 for the wafer

surfaces at the right-most portions of the respective figures to reference number 4. Support for these amendments to Figures 1 and 2 may be found, for example, in Figure 3 and at page 16, lines 6-24.

Reference number 101 and its leaders are added to Figure 4. Support for this amendment to Figure 4 may be found, for example, at page 7, lines 1-2 and at page 12, line 24 through page 13, line 4 of the Specification. Figure 4 is also amended to change the reference number for a thermocouple from 112 to 111 for the reasons described above in the remarks for amendments to the Specification.

Reference number 101 and its leaders are added to Figure 5. Support for this amendment to Figure 5 may be found, for example, at page 12, line 24 through page 13, line 4 of the Specification. Figure 5 is also amended to change the reference number for a treating station from 114 to 90A. Support for this amendment to Figure 5 may be found, for example, at page 12, line 10 through page 13, line 8. No new matter is being added by the amendments to the drawings.

E. Rejection Pursuant to 35 U.S.C. 103(a)

Reconsideration is requested of the rejection of claims 1-17 as being unpatentable over Falster et al. or Huber et al., both in view of Aswad.

Claim 1 as amended is directed to a method of producing a template for oxygen precipitation in a semiconductor wafer, which comprises: heating the wafer which is supported **in a process chamber**, to a temperature of at least about 1175°C; moving the wafer out of heat transfer relation with the support with a Bernoulli wand; and cooling the wafer on the wand in the **same chamber** used for heating the wafer at a rate of at least 10°C/sec until the wafer reaches a temperature of less than about 850°C.

The Office cites the Falster et al., Huber et al., and Aswad references against claim 1. While Falster et al. and Huber et al. disclose heating wafers to temperatures of at least 1175 °C and even rapidly cooling them, neither reference expressly discloses moving a wafer with a Bernoulli wand out of heat transfer relation with a support to rapidly cool the wafer **in the same chamber** used to heat the wafer. Aswad discloses a process and apparatus for decreasing the time required to cool a heated wafer. Aswad, however, fails to disclose or suggest rapidly cooling the wafer in the same chamber used to heat the wafer. To the contrary, Aswad requires wafers to be

removed from the heat treatment process chamber in order to be cooled.¹ Thus, Aswad teaches away from the process of amended claim 1, and amended claim 1 is therefore patentable over Falster et al. and Huber et al. in view of Aswad.

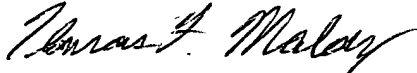
Claims 2-17 further comprise an epitaxial deposition step as part of the rapid thermal annealing method described in claim 1. Claims 2-17 depend directly or indirectly from claim 1; therefore, claims 2-17 are patentable over the cited references for the same reasons given for claim 1.

¹ The Office cites Aswad for this very disclosure. See Office action, at pages 1 and 2 ("[The] Aswad reference teaches moving [a] heated wafer from one chamber to another via a Bernoulli wand."). See also Office action, at page 4 ("[T]here is sufficient reasoning . . . to remove the annealed wafers in the Huber and Falster references and cool outside the heating chamber.")

CONCLUSION

In view of the foregoing, Applicants respectfully submit that claims 1-17 as amended, which are now pending in this application, satisfy the requirements for patentability. Favorable reconsideration and allowance of these claims are therefore respectfully requested.

Respectfully submitted,



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